

ANSWER KEY

Ch 4 Practice Exam

Directions: State the domain and range for the following relations and determine whether it is a function.

1.

x	-1	5	-2	3	1
y	4	2	3	1	3

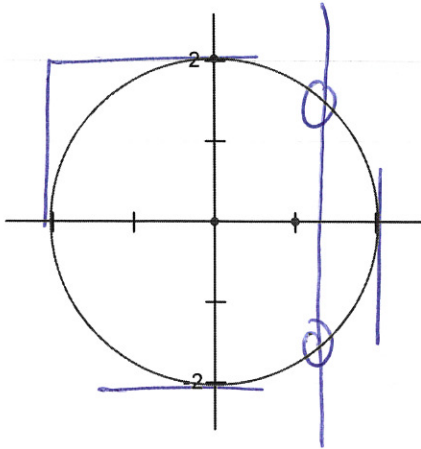
remember
we don't write repeats

Domain: $\{-2, -1, 1, 3, 5\}$

Range: $\{1, 2, 3, 4\}$

Function: Yes No

2.



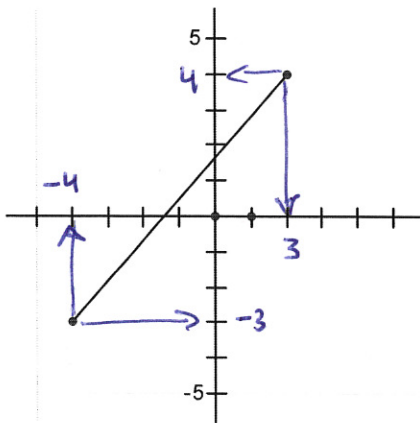
Domain: $-2 \leq x \leq 2$

Range: $-2 \leq y \leq 2$

Function: Yes No

VLT Proves not

3.

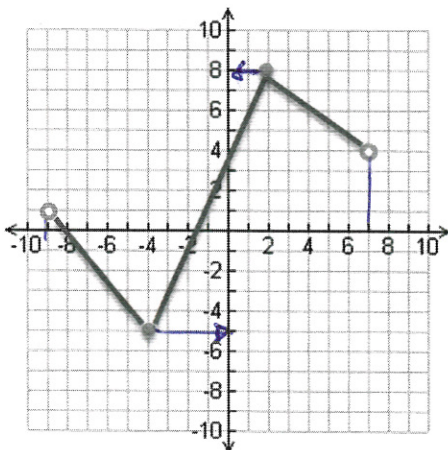


Domain: $-4 \leq x \leq 3$

Range: $-3 \leq y \leq 4$

Function: Yes No

4.



Domain: $-9 < x < 7$

Range: $-5 \leq y \leq 8$

Function: Yes No

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5. Determine the function that explains the given data.

Δx

x	y
3	-5
7	-3
1	-6
9	-2

Δy

Find y if x = 78

$$\frac{\Delta y}{\Delta x} = \frac{2}{4} = \frac{-3}{-6} = \frac{4}{8}$$

$$\frac{1}{2} = \frac{1}{2} = \frac{1}{2} \checkmark$$

must all reduce to a constant rate of change

$$f(x) = \frac{1}{2}x - 6\frac{1}{2}$$

$$(1, -6)$$

$$f(1) = \frac{1}{2}(1)$$

$$f(1) = \frac{1}{2} \left[-6\frac{1}{2} \right] = -6$$

$$f(78) = \frac{1}{2}(78) - 6\frac{1}{2}$$

$$f(78) = 32.5$$

6. Determine the function that explains the given data.

$+6, +6, +6, +6$
 $-21, -15, -9, -3, 3, \dots$
 $n \rightarrow 1, 2, 3, 4, 5$

$$f(n) = 6n - 21$$

Find the 67th term.

$$f(67) = 6(67) - 21$$

$$f(67) = 375$$

$$f(1) = 6(1)$$

$$f(1) = 6$$

$$f(1) = 6 - 27 = -21$$

need to create -21
 so subtract 27

7. Determine the function that explains the given data.

Δx

x	y
7	-8
11	-6
-1	-12
-5	-10

Δy

Find y if x = 23.

$$\frac{\Delta y}{\Delta x} = \frac{2}{4} = \frac{-4}{-12} = \frac{2}{-4}$$

$$\Rightarrow \frac{1}{2} = \frac{1}{2} \neq -\frac{1}{2}$$

Not a linear function so we can not determine y.

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Directions Graph the following Functions.

8. $f(x) = \frac{1}{4}x - 4$

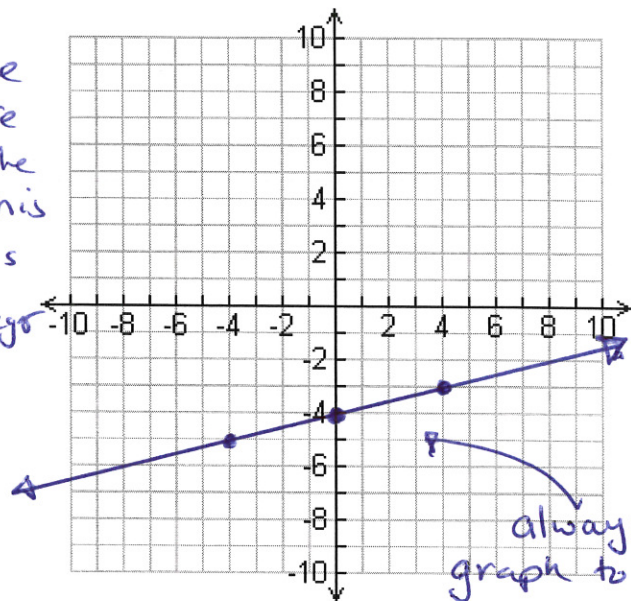
x	$f(x)$
-4	-5
0	-4
4	-3

always choose inputs that are multiples of the denominator, this way it simplifies to a whole/integer number

$$f(-4) = \frac{1}{4}(-4) - 4 = -5$$

$$f(0) = \frac{1}{4}(0) - 4 = -4$$

$$f(4) = \frac{1}{4}(4) - 4 = -3$$



always extend graph to end of given coordinate plane

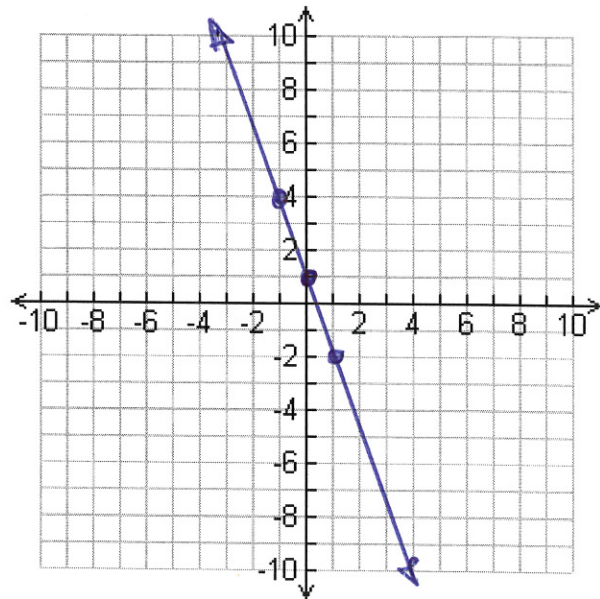
9. $y = -3x + 1$

x	y
-1	4
0	1
1	-2

$$y = -3(-1) + 1 = 4$$

$$y = -3(0) + 1 = 1$$

$$y = -3(1) + 1 = -2$$



Ch 4 Practice Exam

10. Write the following in terms of x then graph.

a.) $2x + y = 4$

Part 1

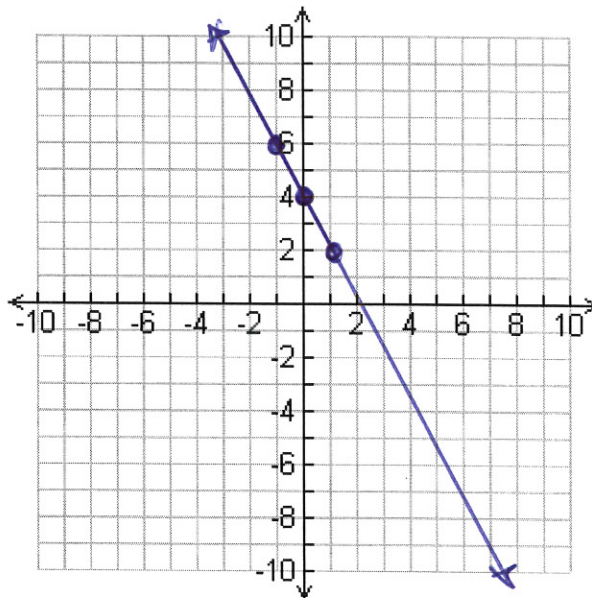
$$\begin{array}{r} -2x \quad -2x \\ y = -2x + 4 \end{array}$$

x	y
-1	6
0	4
1	2

$$y = -2(-1) + 4 = 6$$

$$y = -2(0) + 4 = 4$$

$$y = -2(1) + 4 = 2$$



b.) $-4x - 3y = 9$

Part 1.

$$\begin{array}{r} +4x \quad +4x \\ -3y = \frac{4x}{-3} + \frac{9}{-3} \\ y = -\frac{4}{3}x - 3 \end{array}$$

x	y
-3	1
0	-3
3	-7

$$y = -\frac{4}{3}(-3) - 3 = 1$$

$$y = -\frac{4}{3}(0) - 3 = -3$$

$$y = -\frac{4}{3}(3) - 3 = -7$$

